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said protein selectively binds to an antibody raised [elicits an immune response] against a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34.

8. (Reiterated) An isolated protein comprising a *D. immitis* astacin metalloendopeptidase protein.

Sub 2
11. (Three times amended) The protein of Claim 1, wherein said protein comprises at least a portion of at least one amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:31, SEQ ID NO:34, wherein said portion selectively binds to an antibody raised [elicits an immune response] against a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34; and wherein said portion comprises an at least 9 contiguous amino acid region of an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34.

12. (Reiterated) The protein of Claim 1, wherein said protein comprises an extended zinc-binding domain motif.

13. (Reiterated) The protein of Claim 1, wherein said protein is produced by a process comprising culturing in an effective medium a recombinant cell transformed with a nucleic acid molecule encoding said protein to produce said protein.

Sub 3
16. (Three Times Amended) A [therapeutic composition for protecting an animal from disease caused by a parasite, said parasite being susceptible to an inhibitor of an astacin metalloendopeptidase, said therapeutic] composition comprising an excipient and [at least one protective compound selected from the group consisting of:

(a)] an isolated astacin metalloendopeptidase protein encoded by a nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID

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NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33 under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardt's and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C, wherein said protein selectively binds to an antibody raised against a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34.; and

(b) an isolated protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34, or a homolog thereof, wherein said homolog has an at least about 9 contiguous amino acid region of an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34].

17. (Reiterated) The composition of Claim 16, wherein said composition further comprises at least one component selected from the group consisting of an [excipient, an] adjuvant and a carrier.

23. (Reiterated) A method to identify a compound capable of inhibiting astacin metalloendopeptidase activity of a parasite, said method comprising:

(a) contacting an isolated protein encoded by a nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33, under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardt's and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C; with a putative inhibitory compound under conditions in which, in the absence of said compound, said astacin metalloendopeptidase protein has astacin metalloendopeptidase activity; and

(b) determining if said putative inhibitory compound inhibits said activity.

24. (Reiterated) A test kit to identify a compound capable of inhibiting astacin metalloendopeptidase activity of a parasite, said test kit comprising an isolated protein encoded by a nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33, under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardts and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C; wherein said protein selectively binds to an antibody raised against a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34; and a means for determining the extent of inhibition of said activity in the presence of a putative inhibitory compound.

10 25. (Twice Amended) An isolated protein [having an amino acid sequence] selected from the group consisting of: (a) a protein having an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34; and (b) a protein having an amino acid sequence comprising at least 9 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34 [, or a homolog thereof, wherein said homolog has an at least 9 contiguous amino acid region identical in sequence to a 9 contiguous amino acid region of an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34].

26. (Reiterated) The protein of Claim 25, wherein said protein comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34.